

Form PTO-1449

INFORMATION DISCLOSURE CITATION
FOR AN APPLICATION
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JUN 20 2001

 Docket Number (Optional)
 HMSU-P14-006

 Application Number
 09/711724

 Applicant
 Ingham et al.

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 1646

U.S. PATENT DOCUMENTS

U.S. PATENT DOCUMENTS							
EXAMINER'S MARK	DOCUMENT NUMBER		DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
ZH	AA	5,223,408	6/29/93	Goddell et al.	435	69.3	11-Jul-1991
ZH	AB	5,585,087	12/17/96	Lustig et al.	424	9.2	08-Jun-1994

FOREIGN PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS								
	DOCUMENT NUMBER		DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO
ZH	AC	WO 90/02809	3/22/90	PCT	C12P	21/00		
ZH	AD	WO 92/15679	9/17/92	PCT	C12N	15/10		

OTHER DOCUMENTS

(Including Author, Title, Date, Pertinent Pages Etc.)

ZH	AE	Anderson, R. et al., "Maintenance of ZPA signaling in cultured mouse limb bud cells", <i>Devel.</i> <u>117</u> :142-1433 (1993).						
ZH	AF	Angier, N. "Biologists find key genes that shape patterning of embryos", <i>New York Times</i> , Jan 11, 1994, C-1.						
ZH	AG	Basler, K.I., and G. Struhl, "Compartment boundaries and the control of <i>Drosophila</i> limb pattern by <i>hedgehog</i> protein", <i>Nature</i> <u>368</u> :208-214 (1994).						
ZH	AH	Basler, K. et al., "Control of Cell Pattern in the Neural Tube: Regulation of Cell Differentiation by <i>dorsalin-1</i> , a Novel TGF β Family Member", <i>Cell</i> <u>73</u> : 687-702 (May 21, 1993).						
ZH	AI	Bass, S. et al., "Hormone phage: An Enrichment Method for Variant Proteins with Altered Binding Properties", <i>PROTEINS: Structure, Function, and Genetics</i> <u>8</u> :309-314 (1990).						
ZH	AJ	Bejsovec, A. and E. Wieschaus, "Segment polarity gene interactions modulate epidermal patterning in <i>Drosophila</i> embryos", <i>Devel.</i> <u>119</u> :501-517 (1993).						
ZH	AK	Bienz, M., "Homeotic genes and positional signalling in the <i>Drosophila</i> viscera", <i>TIG</i> <u>10</u> :22-26 (Jan. 1994).						
ZH	AL	Bitgood, M. and McMahon, A., "Hedgehog and Bmp Genes are Coexpressed at Many Diverse Sites of Cell-Cell Interaction in the Mouse Embryo", <i>Dev. Biol.</i> <u>172</u> (1):126-138 (1995).						
ZH	AM	Blair, S.S., "Hedgehog digs up an old friend", <i>Nature</i> <u>373</u> :656-657 (23 Feb. 1995).						
ZH	AN	Bowie et al., "Deciphering the Message in Protein Sequences: Tolerance to Amino Acid Substitutions", <i>Science</i> <u>247</u> :1306-1310						
ZH	AO	Brand-Saberi, B. et al., "The ventralizing effect of the notochord on somite differentiation in chick embryos", <i>Anat. Embryol.</i> <u>188</u> :239-245 (1993).						

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ZH	AP	Brookes, J., "We may not have a morphogen", <i>Nature</i> <u>350</u> :15 (1991).	
ZH	AQ	Bumcrot, D.A. and McMahon A. "Sonic Hedgehog: Making the gradient", <i>Chemistry and Biology</i> <u>3</u> (1):13-16 (Jan. 1996).	
ZH	AR	Bumcrot, D.A. and McMahon, A., "Sonic signals somites", <i>Curr. Biol.</i> <u>5</u> (6):612-614 (June 1995).	
ZH	AS	Bumcrot, D.A. et al., "Proteolytic Processing yields two secreted forms on sonic Hedgehog", <i>Mol. Cell. Biol.</i> <u>15</u> (4):2294-2302 (4/95).	
ZH	AT	Chang et al., Products, genetic linkage and limb patterning activity of a murine hedgehog gene, <i>Development</i> 120:3339-3353, Nov. 1994.	
ZH	AU	Charité, J. et al., "Ectopic Expression of <i>Hoxb-8</i> Causes Duplication of the ZPA in the Forelimb and Homeotic Transformation of Axial Structures", <i>Cell</i> <u>78</u> :589-601 (1994).	
ZH	AV	Coffman et al., "Xotch, the Xenopus homolog of Drosophila notch", <i>Science</i> <u>249</u> :1438-1441 (1990)	
ZH	AW	Concordet, J. and Ingham, P., "Developmental biology. Patterning goes sonic", <i>Nature</i> <u>375</u> (6529):279-280 (May 1995)	
ZH	AX	Creighton, T.E., <i>Proteins Structures and Molecular Principles</i> , W.H. Freeman and Company: New York, NY, pp. 223-227.	
ZH	AY	Currie et al., "Induction of a specific muscle cell type by a hedgehog-like protein in zebrafish", <i>Nature</i> <u>383</u> :452-455 (1996)	
ZH	AZ	Curry et al., "Sequence analysis reveals homology between two proteins of the flagellar radial spoke", <i>Mol. Cell. Biol.</i> <u>12</u> :3967-3977 (1992)	
ZH	BA	Davidson, E.H., "How embryos work: a comparative view of diverse modes of cell fate specification", <i>Devel.</i> <u>108</u> :365-389 (1990)	
ZH	BB	Davis, A.P. and M.R. Capecchi, "Axial homeosis and appendicular skeleton defects in mice with a targeted disruption of <i>hoxd-1</i> ", <i>Devel.</i> <u>120</u> :2187-2198 (1994)	
ZH	BC	Dickinson W., "Molecules and morphology: Where's the homology", <i>TIG</i> <u>11</u> , (4):119-120 (1995)	
ZH	BD	Dingemans, M.A. et al., "The expression of liver-specific genes within rat embryonic hepatocytes in a discontinuous process", <i>Differentiation</i> <u>56</u> :153-162 (1994)	
ZH	BE	Dollé, P. et al., "Coordinate expression of the murine <i>Hox-5</i> complex homeobox-containing genes during limb pattern formation", <i>Nature</i> <u>342</u> :767-772 (1989)	
ZH	BF	Dollé, P. et al., "Disruption of the <i>Hoxd-13</i> Gene Induces Localized Heterochrony Leading to Mice with Neotenic Limbs", <i>Cell</i> <u>75</u> : 431-441 (Nov. 5, 1993).	

Form PTO-140

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ZH	BG	Echelard, Y. et al., "Sonic Hedgehog, a member of a family of putative signaling molecules, is implicated in the regulation of CNS polarity", <i>Cell</i> <u>75</u> :1417-1430 (1993)
ZH	BH	Ekker, S. et al., "Distinct expression and shared activities of members of the hedgehog gene family of <i>xenopus laevis</i> ", <i>Devel.</i> <u>121</u> (8):2337-2347 (Aug 1995)
ZH	BI	Ericson, J. Et al., "Sonic hedgehog induces the differentiation of ventral forebrain neurons: a common signal for ventral patterning within the neural tube", <i>Cell</i> <u>81</u> (5):747-756 (June 1995)
ZH	BJ	Ettelaie, C. et al., "The effect of lipid peroxidation and lipolysis on the ability of lipoproteins to influence thromboplastin activity", <i>Biochim. Biophys. Acta.</i> <u>1257</u> (1):25-30 (June 1995)
ZH	BK	Fahrner, K. et al., "Transcription of <i>H-2</i> and <i>Qa</i> genes in embryonic and adult mice", <i>EMBO J.</i> <u>6</u> :1265-1271 (1987)
ZH	BL	Fallon, J.F. et al., "FGF-2: Apical ectodermal ridge growth signal for chick limb development", <i>Science</i> <u>264</u> :104-107(1994)
ZH	BM	Fan, C. et al., "Long-range sclerotome induction by sonic hedgehog: Direct role of the amino-terminal cleavage product and modulation by the cyclic AMP signaling pathway", <i>Cell</i> <u>81</u> : 457-465 (5 May 1995)
ZH	BN	Fietz, M. et al., The hedgehog gene family in <i>Drosophila</i> and vertebrate development", <i>Develop. Supp.</i> 43-51 (1994)
ZH	BO	Forbes, A.J., et al., "Genetic analysis of <i>hedgehog</i> signalling in the <i>Drosophila</i> embryo", <i>Devel.</i> <u>119</u> (Supp.): 115-124 (1993)
ZH	BP	Francis, P.H. et al., "Bone morphogenetic proteins and a signalling pathway that controls patterning in the developing chick limb", <i>Devel.</i> <u>120</u> :209-218 (1994)
ZH	BQ	Gallop, J., et al., "Applications of combinatorial technologies to drug discovery. I. Background and peptide combinatorial libraries", <i>J. of Med. Chem.</i> <u>37</u> (9):1233-1251 (1994)
ZH	BR	Gérard, M. et al., "Structure and activity of regulatory elements involved in the activation of the <i>Hoxd-11</i> gene during late gastrulation", <i>EMBO J.</i> <u>12</u> :3539-3550 (1993)
ZH	BS	Gurdon, J.B., "The Generation of diversity and pattern in animal development", <i>Cell</i> <u>68</u> :185-199 (1992)
ZH	BT	Gustin, K. et al., "Characterization of the role of individual protein binding motifs within the hepatitis B virus enhancer 1 on X promoter activity using linker scanning mutagenesis", <i>Virology</i> <u>193</u> :653-660 (1993)
ZH	BU	Hall, T., et al., "A potential catalytic site revealed by the 1.7-A crystal structure of the amino-terminal signalling domain of Sonic hedgehog", <i>Nature</i> <u>378</u> (6553):212-216(Nov 1995)
ZH	BV	Halpern, M.E., et al., "Induction of muscle pioneers and floor plate is distinguished by the zebrasish <i>no tail</i> mutation", <i>Cell</i> <u>75</u> :99-111 (1993)
ZH	BW	Hamburger, V. and H.L. Hamilton, "A series of normal stages in the development of the chick embryo", <i>J. Morph.</i> <u>88</u> :49-92 (1951)

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ZH	BX	Hammerschmidt, M. et al., "The world according to hedgehog", <i>TIG</i> 13(1):14-21 (1997)	
ZH	BY	Haramis, A. et al., "The limb deformity mutation disrupts the SHH/FGF-4 feedback loop and regulation of 5-HoxD genes during limb pattern formation", <i>Devel.</i> 121(12):4161-4170 (Dec 1995)	
ZH	BZ	Hardy, A. et al., "Gene expression, polarising activity and skeletal patterning in reaggregated hind limb mesenchyme", <i>Devel.</i> 121(12):4329-4337 (Dec 1995)	
ZH	CA	Hatta, K. et al., "The cyclops mutation blocks specification of the floor plate of the zebrafish central nervous system", <i>Nature</i> 350:339-341 (1991)	
ZH	CB	Heberlein, U. et al., "The TGBB homolog <i>dpp</i> and the segment polarity gene <i>hedgehog</i> are required for propagation of a morphogenetic wave in the <i>Drosophila</i> retina", <i>Cell</i> 75:913-926 (1993)	
ZH	CC	Heemskerk, J. and S. DiNardo, "Drosophila patched gene encodes a putative membrane protein required for segmental patterning", <i>Cell</i> 59:751-765 (1989)	
ZH	CD	Hidalgo, A. and P. Ingham, "Cell patterning in <i>Drosophila</i> segment: spatial regulation of the segment polarity gene <i>patched</i> ", <i>Devel.</i> 110:291-301 (1990)	
ZH	CE	Hooper, J. and Scott, M., "The <i>Drosophila</i> patched gene encodes a putative membrane protein required for segmental patterning", <i>Cell</i> 59:751-765 (1989)	
ZH	CF	Hynes, M., et al., "Induction of midbrain dopaminergic neurons by Sonic Hedgehog", <i>Neuron</i> 15(1):35-44 (July 1995)	
ZH	CG	Hynes, R.O., "Integrins: A family of Cell Surface Receptors", <i>Cell</i> 48:549-554 (1987)	
ZH	CH	Ingham, P.W. and A. Hidalgo, "Regulation of <i>wingless</i> transcription in the <i>Drosophila</i> embryo", <i>Devel.</i> 117:283-291 (1993)	
ZH	CI	Ingham, P.W., "Localized <i>hedgehog</i> activity controls spatial limits of <i>wingless</i> transcription in the <i>Drosophila</i> embryo", <i>Nature</i> 366: 560-562 (1993).	
ZH	CJ	Ingham, P.W. et al., "Role of the <i>Drosophila</i> <i>patched</i> gene in positional signalling", <i>Nature</i> 353:184-187 (1991)	
ZH	CK	Ingham, P.W., " <i>Hedgehog</i> points the way", <i>Current Biology</i> 4(4):347-350 (1994)	
ZH	CL	Ingham, P.W., "Signalling by hedgehog family proteins in <i>Drosophila</i> and vertebrate development", <i>Curr. Opin. Genet. Dev.</i> 5(4): 492-498 (Aug 1995)	
ZH	CM	Izpisua-Belmonte, J.-C. et al., "Expression of <i>Hox-4</i> genes in the chick wings links pattern formation to the epithelial-mesenchymal interactions that mediate growth", <i>EMBO J.</i> 11:1451-1457(1992)	
ZH	CN	Izpisua-Belmonte, J.-C. et al., "Expression of the homeobox <i>Hox-4</i> genes and the specification of position in chick wing development", <i>Nature</i> 350:585-589 (1991)	

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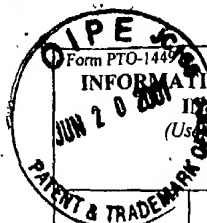
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JUN 20 2001

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ZH		Jessel, T.M. and D.A. Melton, "Diffusible factors in vertebrate embryonic induction", <i>Cell</i> <u>68</u> :257-270 (1992)
ZH	CP	Jiang, J. and Struhl, G., "Protein kinase A in hedgehog signalling in <i>Drosophila</i> limb development", <i>Cell</i> <u>80</u> (4):563-572 (Feb 1995)
ZH	CQ	Johnson, R.L. and C. Tabin, "The long and short of <i>hedgehog</i> signalling", <i>Cell</i> <u>81</u> :313-315 (5 May 1995)
ZH	CR	Johnson, R.L. et al., "Mechanisms of limb patterning", <i>Curr. Opin. Genet. Dev.</i> <u>4</u> (4):535-542 (Aug 1994)
ZH	CS	Johnson, R.L. et al., "Patched overexpression alters wing disc size and pattern: transcriptional and post-transcriptional effects on hedgehog targets", <i>Devel.</i> <u>121</u> (12):4237-4245 (Dec 1995)
ZH	CT	Johnson, R.L. et al., "Sonic hedgehog: a key mediator of anterior-posterior patterning of the limb and dorso-ventral patterning of axial embryonic structures" <i>Biochem. Soc. Trans.</i> <u>22</u> (3):569-574 (Aug 1994)
ZH	CU	Johnson, R.L., et al., "Ectopic expression of Sonic hedgehog alters dorsal-ventral patterning of somites", <i>Cell</i> <u>79</u> (7):1165-1173 (Dec 1994)
ZH	CV	Jones, M. Et al., Involvement of bone morphogenetic protein-4 (BMP-4) and Vgr-L in morphogenesis and neurogenesis in the mouse", <i>Devel.</i> <u>111</u> :531-542 (1991)
ZH	CW	Kalderon, D., "Morphogenetic signaling. Responses to hedgehog" <i>Curr. Biol.</i> <u>5</u> (6):580-582 (June 1995)
ZH	CX	Kornblihtt, A.R. et al., "Primary structure of human fibronectin: differential splicing may generate at least 10 polypeptides from a single gene", <i>EMBO J.</i> <u>4</u> :1755-1759 (1985)
ZH	CY	Koonin, E., "A protein splice-junction motif in hedgehog family proteins", <i>Trends in Biochem. Sci</i> <u>20</u> (4):141-142 (April 1995)
ZH	CZ	Kornfeld, R. and S. Kornfeld, "Assembly of asparagine-Linked oligosaccharides", <i>Ann. Rev. Biochem.</i> <u>54</u> :631-664 (1985)
ZH	DA	Krauss, S. et al., "A functionally conserved homolog of the <i>Drosophila</i> segment polarity gene <i>hh</i> is expressed in tissues with polarizing activity in zebrafish embryos", <i>Cell</i> <u>75</u> :1431-1444 (1993)
ZH	DB	Krauss, S. et al., "Expression of the zebrafish paired box gene <i>pax[xf-b]</i> during early neurogenesis", <i>Devel.</i> <u>113</u> :1193-1206 (1991)
ZH	DC	Lai, C. et al., "Patterning of the neural ectoderm of <i>Zenopus laevis</i> by the amino-terminal product of hedgehog autopolytic cleavage", <i>Devel.</i> <u>121</u> (8):2349-2360 (Aug 1995)
ZH	DD	Laufer, E. et al., " <i>Sonic hedgehog</i> and <i>Fgf-4</i> act through a signaling cascade and feedback loop to integrate growth and patterning of the developing limb bud", <i>Cell</i> <u>79</u> :993-1003 (16 Dec. 1994)
ZH	DE	Lee, J. et al., "Autoproteolysis in hedgehog protein biogenesis", <i>Science</i> <u>266</u> (5190):1528-1537 (Dec 1994)

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ZH	DF	Lee, J.J. et al., "Secretion and localized transcription suggest a role in positional signaling for products of the segmentation gene <i>hedgehog</i> ", <i>Cell</i> 71:33-50 (1992)	
ZH	DG	Lee, Se-Jin, "Expression of growth/differentiation factor 1 in the nervous system: Conservation of a bicistronic structure", <i>PNAS</i> 88: 4250-54 (May 1991).	
ZH	DH	Lerner, R.A., Antibodies of predetermined specificity in biology and medicine, <i>Adv. Immunol.</i> , 36: 1-44.	
ZH	DI	Levin, M. et al., "A molecular pathway determining left-right asymmetry in chick embryogenesis", <i>Cell</i> 82 (5):803-814 (Sept 1995)	
ZH	DJ	Li, W. et al., "Function of protein kinase A in hedgehog signal transduction and <i>Drosophila</i> imaginal disc development", <i>Cell</i> 80(4):553-562 (Feb 1995)	
ZH	DK	Lopez-Martinez, A. et al., "Limb-patterning activity and restricted posterior localization of the amino-terminal product of <i>Sonic hedgehog</i> cleavage", <i>Curr Biol.</i> 5 (7):791-796 (July 1995)	
ZH	DL	Lumsden, A. and Graham, A., "Neural patterning: A forward role for hedgehog", <i>Curr Biol.</i> 5 (12):1347-1350 (Dec 1995)	
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ZH	DN	Ma, C. et al., "The segment polarity gene <i>hedgehog</i> is required for progression of the morphogenetic furrow in the developing <i>Drosophila</i> eye", <i>Cell</i> 75:927-938 (1993)	
ZH	DO	Maccabe, J.A. and B.W. Parker, "The target tissue of limb-bud polarizing activity in the induction of supernumerary structures", <i>J. Embryol Exp. Morph.</i> 53:67-73 (1979)	
ZH	DP	Marigo, V. et al., "Biochemical evidence that patched is the hedgehog receptor", <i>Nature</i> 384 176-179 (1996)	
ZH	DQ	Marti, E. et al., "Requirement of 19K form of <i>Sonic hedgehog</i> for induction of distinct ventral cell types in CNS explants", <i>Nature</i> 375: 322-325 (1995).	
ZH	DR	Marti, E. et al., "Distribution of <i>Sonic hedgehog</i> peptides in the developing chick and mouse embryo", <i>Devel.</i> 121 (8):2537-2547 (Aug 1995)	
ZH	DS	Mavillo, F. et al., "Activation of four homeobox gene clusters in human embryonal carcinoma cells induced to differentiate by retinoic acid", <i>Differentiation</i> 37:73-79 (1988)	
ZH	DT	McGinnis, W. and R. Krumlauf, "Homeobox genes and axial patterning", <i>Cell</i> 68:283-302 (1992)	
ZH	DU	Mohler, J. and K. Vani, "Molecular organization and embryonic expression of the <i>hedgehog</i> gene involved in cell-cell communication in segmental patterning of <i>Drosophila</i> ", <i>Devel.</i> 115:957-971 (1992)	
ZH	DV	Mohler, J., "Requirements for <i>hedgehog</i> , a segmental polarity gene, in patterning larval and adult cuticle of <i>Drosophila</i> ", <i>Genetics</i> 120:1061-1072 (1988)	



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ZH	DW	Morgan, B.A. et al., "Targeted misexpression of <i>Hox-4.6</i> in the avian limb bud causes apparent homeotic transformations", <i>Nature</i> <u>358</u> :236-239 (1992)
ZH	DX	Munsterberg A. et al., "Combinational signaling by Sonic hedgehog and Wnt family members induces myogenic bHLH gene expression in the somite", <i>Genes Dev.</i> <u>9</u> (23):2911-2922 (Dec 1995)
ZH	DY	Nakano, Y. et al., "A protein with several possible membrane-spanning domains encoded by the <i>Drosophila</i> segment polarity gene patched", <i>Nature</i> <u>341</u> :508-513 (1989)
ZH	DZ	Ngo, J. et al., "Computational Complexity, Protein Structure Prediction, and the Levinthal Paradox", in <i>The protein folding problem and tertiary structure prediction</i> (Merz and LeGrand, ed.), Birkhauser, Boston (1994).
ZH	EA	Niswander, L. and G.R. Martin, "FGF-4 and BMP-2 have opposite effects on limb growth", <i>Nature</i> <u>361</u> :68-71 (1993)
ZH	EB	Niswander, L. et al., "A positive feedback loop coordinates growth and patterning in the vertebrate limb", <i>Nature</i> <u>371</u> : 609-612 (Oct 1994).
ZH	EC	Nohno, T. et al., "Involvement of the <i>Chox-4</i> chicken homeobox genes in determination of anteroposterior axial polarity during limb development", <i>Cell</i> <u>64</u> :1197-1205 (1991)
ZH	ED	Nohno, T. et al., "Involvement of the Sonic hedgehog gene in chick feather formation", <i>Biochem. Biophys. Res. Comm.</i> <u>206</u> (1):33-39 (Jan 1995)
ZH	EE	O'Farrell, P.H. "Unanimity waits in the wings", <i>Nature</i> <u>368</u> :188-189 (1994)
ZH	EF	Parr, B.A. et al., "Mouse <i>Wnt</i> genes exhibit discrete domains of expression in the early embryonic CNS and limb buds", <i>Devel.</i> <u>199</u> :247-261 (1993)
ZH	EG	Patel, N.H. et al., "The role of segment polarity genes during <i>Drosophila</i> neurogenesis", <i>Genes Devel.</i> <u>3</u> :890-904 (1989)
ZH	EH	Peifer, M., "The two faces of hedgehog", <i>Science</i> <u>266</u> (5190):1492-1493 (Dec 1994)
ZH	EI	Perrimon, N., "Hedgehog and beyond", <i>Cell</i> <u>80</u> :517-520 (24 Feb. 1995)
ZH	EJ	Pham, A. et al., "The suppressor of fused gene encodes a novel PEST protein involved in <i>Drosophila</i> segment polarity establishment", <i>Genetic</i> <u>140</u> (2):587-598 (June 1995)
ZH	EK	Placzek, M. et al., "Induction of floor plate differentiation by contact-dependent, homeogenetic signals", <i>Devel.</i> <u>117</u> :205-218 (1993)
ZH	EL	Placzek, M. et al., "Orientation of commissural axons <i>in vitro</i> in response to a floor plate-derived chemoattractant", <i>Devel.</i> <u>110</u> :19-30 (1990)
ZH	EM	Pollack, R.A. et al., "Altering the boundaries of <i>Hox3.1</i> expressions: Evidence for antipodal gene regulation", <i>Cell</i> <u>71</u> :911-923 (1992)

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ZH	EN	Porter, J. et al., "The product of hedgehog autoproteolytic cleavage active in local and long-range signaling", <i>Nature</i> <u>374</u> (6520): 363-366 (Mar 1995)	
ZH	EO	Reeck et al., "Homology in proteins and nucleic acids: A terminology muddle and a way out of it", <i>Cell</i> , <u>50</u> :667 (1987)	
ZH	EP	Rennie, J., "Super Sonic", <i>Scientific American</i> : 20 (April 1994).	
ZH	EQ	Riddle, R.D. et al., "Induction of the LIM homeobox gene Lmx1 by WNT7a establishes dorsoventral pattern in the vertebrate limb", <i>Cell</i> <u>83</u> (6553):212-216 (Nov 1995)	
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